

# FIRST BRITISH RECORDS OF THE SAWFLY *EMPHYTUS LATICINCTUS* (SERVILLE) (HYMENOPTERA: TENTHREDINIDAE)

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## ABSTRACT

The rose-feeding sawfly *Emphytus laticinctus* (Serville) is reported as a breeding species in south Wales. Recent nomenclatural changes are highlighted. A habitus figure of the female and genitalia drawings of both sexes are provided together with characters for separation from British congeners are described. Consideration is also given to literature relating to *E. didymus* (Klug), another continental species previously regarded by some authors as conspecific. Details of biology, host plant associations, pest status and characters for recognition of larvae are also included.

## INTRODUCTION

In 2003, six specimens of a sawfly not previously recorded from Britain were found in samples resulting from an invertebrate survey of Welsh coastal soft cliffs, undertaken by National Museums Liverpool for the Countryside Council for Wales.

All of the insects, subsequently identified as *Emphytus laticinctus* (Serville, 1823), originated from two coastal soft cliff sites near Cardigan (VC46), south Wales. Four ♀♀ and one ♂ were collected in a Malaise trap set between 16.vi.2003 and 1.vii.2003 at Creigiau Gwbert SN16244908, a complex of flushed soft cliffs and hard Ordovician coast with glacial deposits, less than one mile in length (Howe, 2002). An additional ♀ was collected in a yellow water-trap, set at Traeth y Mwnt SN19435186, between 17.vi.2003 and 7.vii.2003. The site, approximately three miles from Creigiau Gwbert, is a 200m stretch of steep, partially vegetated, soft cliffs from which arise several springs and seepages.

Further visits to Creigiau Gwbert in 2005 confirmed that the population had persisted at this site for a further two years. On 25.vi.2005 three adults, one ♂ and two ♀♀, were swept from Burnet Rose, *Rosa spinosissima* L., which grows extensively on scrubby headlands at the site. Larvae were subsequently found in numbers feeding on this plant on 6.viii.2005, and reared in captivity.

## TAXONOMY

The generic name *Emphytus* Klug, 1815, has been used in accordance with the current British checklist (Sheppard, 2003). Lacourt (1989) characterises the genera *Allantus* Panzer, 1801 and *Emphytus*, (often applied virtually synonymously), by differences in wing venation, antennae and male genitalia. As a result of this revision *E. laticinctus*, and, with the exception of *A. togatus* Panzer, 1801, all British *Allantus sensu lato* species, belong to *Emphytus*.

*Emphytus laticinctus* is commonly dealt with under the name *balteatus* (Klug, 1818). This was shown by Liston (1995) to be a primary homonym of *Tenthredo balteata* (Klug, 1817). Full synonymy is detailed by Lacourt (1999). Further references relating to the taxonomy of this species include: Le Peletier de Saint-Fargeau (1823), Kriechbaumer (1884), Blank (1996), Taeger & Blank (1996), Blank & Taeger (1998) and Lacourt (2000).

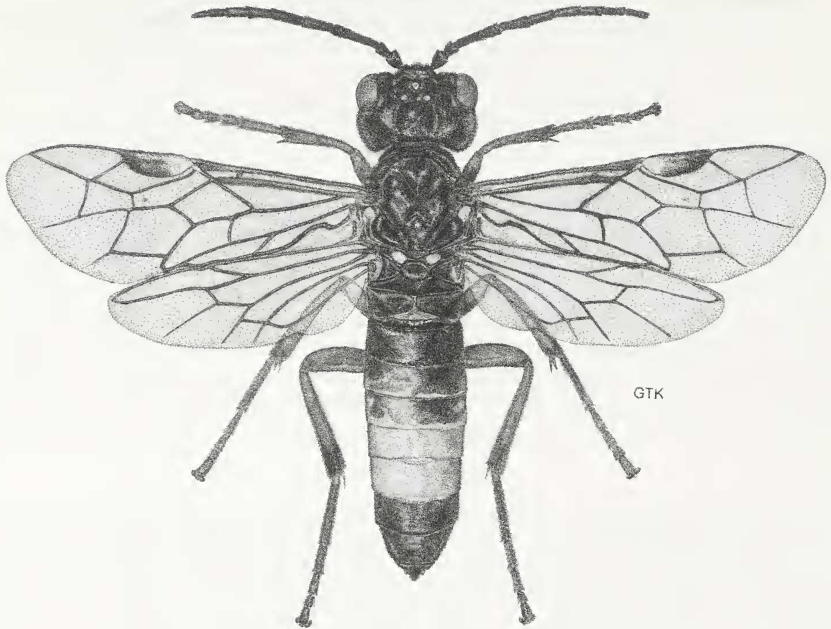


Figure 1. *Emphytus laticinctus* female.

#### IDENTIFICATION

Unfortunately, the sexual dimorphism of this species would make any attempt to adapt an existing key to include this species clumsy and unworkable. There follow some notes on how to separate each sex from similar British congeners.

Females can readily be distinguished. They are distinctive in their red-girdled abdomens and the markedly bicoloured stigma of the forewing (Fig. 1, body length 7 mm). Both *E. calceatus* (Klug), and *E. rufocinctus* (Retzius), the red-girdled species separated in couplet 2 of Benson's (1952) key to *Allantus sensu lato*, have well-developed sculpture on at least the upper half of the mesopleura, whereas in *E. laticinctus* it is uniformly smooth and polished. In the female, the colour of the stigma is also distinctive, the white basal half contrasting strongly with the dark apical half. Although rare dark-legged specimens are known (Koch, 1988), the hind femora are typically red, whereas in *E. rufocinctus* the hind legs are black. Also, the orange-red colouration of the abdomen is concentrated on the fifth and sixth tergites, and, as in all the Welsh specimens, the third and fourth tergites may also be touched with red. In both *E. rufocinctus* and *E. calceatus*, the red girdle covers the fourth and fifth tergites. The saw of *E. laticinctus* is illustrated in Fig. 2.

Females can be keyed in a number of continental works (Enslin, 1918; Berland, 1947; Muche, 1969; Scobiola-Palade, 1981; Magis, 1999). Enslin (1918) did not know the male with certainty but refers to a specimen in Konow's collection with a uniformly black abdomen. Zirngiebl (1937) described the male from specimens he had obtained through captive breeding and confirmed this sexual dimorphism.

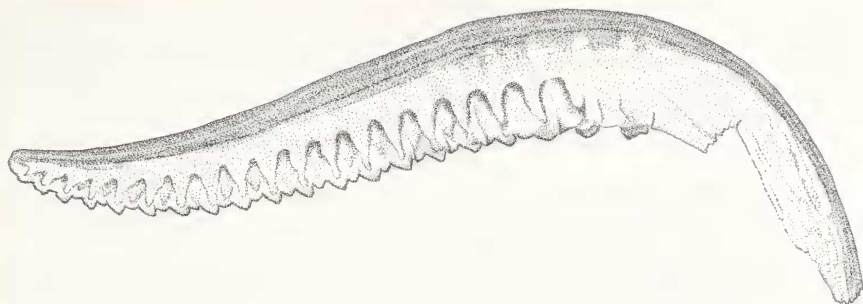


Figure 2. Female saw of *Emphytus laticinctus*.

However, none of the keys referenced above takes account of this, and will not work for males.

Apart from the black abdomen [very rarely marked with red on the hind margins of the fifth and sixth tergites (Koch, 1988)], the male resembles the female. If identified using Benson (1952), it could be confused with the extremely rare *E. melanarius* (Klug, 1818). The male of *E. melanarius* was not known to Benson, however, the penis valve figured for this species by Muche (1972) is different to that of *E. laticinctus* (Fig. 3). The male superficially resembles *E. cinctus* (L.), as the base of the stigma may also be pale in this species. The ordinarily red hind femora, smooth mesopleura, penis valve, and strong colouration of the stigma, distinguish males of *E. laticinctus* from this and other British species.

Enslin (1918) speculated that *E. laticinctus* may be an intraspecific form of another continental species, *E. didymus* (Klug), differing only in the red-girdled abdomen of the female. Zirngiebl (1937) described and figured the male of *E. laticinctus*. He was unable to compare this with *E. didymus*, but does demonstrate differences in the female saw. The penis valve of the male is difficult to distinguish from the examples of that of *E. didymus* figured by Muche (1972), although Koch (1988) gives additional morphological characters. Zhelokhovtsev (1988) treats the taxon as a synonym of *E. didymus*. Similarly, all specimens in the collections of the Natural History Museum, London are placed under *E. didymus*, most probably indicating that Benson also believed the insects to be conspecific (Springate *pers. comm.*). A more recent work (Liston, 2004) describes the larva of *E. didymus* and clearly demonstrates host-plant and other biological differences between the species.

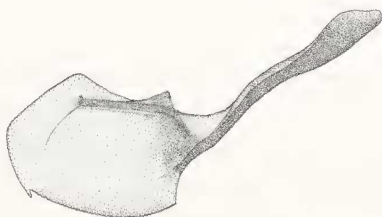


Figure 3. Male penis valve of *Emphytus laticinctus*.

It is also worth noting that Stephens (1835) records *E. didymus* from England. Although the occurrence of this species in Britain at this time is plausible, the provenance of the specimen or specimens concerned is somewhat questionable (Liston *pers. comm.*).

### BIOLOGY

Zirngiebl (1937) and Scheibelreiter (1973) give detailed accounts of the biology of this insect. Typically it inhabits scrubby, dry habitats. In Austria it has three generations a year, with adults flying in May, mid-late July and August.

Larvae feed for 20–25 days at the margins of older leaves of *Rosa* spp., including *R. canina*, *R. arvensis*, *R. agrestis*, *R. pendulina*, *R. rubiginosa*, *R. gallica* and ornamental varieties. The larva of *E. laticinctus* can be separated from other members of the genus by its uniform yellow head and dark-marked clypeus (Lorenz & Kraus, 1957). Older larvae also have distinctive brownish lateral and dorsal stripes along the body. Prior to pupation, larvae often bore into the pith of cut stems or similar material. Keys to immature stages of rose-feeding sawflies can also be found in Scheibelreiter (1973).

The larvae collected on 6.viii.2005 were reared indoors under artificial conditions. After continuing to feed for a further week, the larvae bore into cork in preference to cut stems of *R. spinosissima*, fully fed larvae taking on a pinkish hue. Three adult females emerged between the 9–11.ix.2005, whilst about ten individuals persisted as prepupae into the winter in cells lined with consolidated sawdust excavated in the cork.

This species has been recorded from central and southern Europe (Austria, Albania, Belgium, Switzerland, Cyprus (Schedl, 1993), Czechia and Slovakia, Germany, Spain, France, Hungary, Italy, Luxembourg, Romania) (Liston, 1995), Caucasus, Turkey (Çalmasur & Özbek, 2004), Iran, Siberia and Central Asia (Lacourt, 1999). It is regarded as rare in Belgium (Magis, 1999), Austria (Scheibelreiter, 1973), and Germany (Zirngiebl, 1937; Taeger *et al.*, 1998) where it is placed in category three of the Red List.

### DISCUSSION

Welsh coastal soft cliffs have a rather limited sawfly fauna, most probably because of their dry, warm conditions and limited flora. The abundance of ants may add to their unsuitability. Creigiau Gwbert is a relatively damp and scrubby site, and produced a more extensive species list than others, including two additional *Rosa* feeding *Emphytus* spp. In Europe *E. laticinctus* is associated with sandy, warm, dry situations (Zirngiebl, 1937; Scheibelreiter, 1973; Taeger *et al.*, 1998). In this sense, coastal soft cliffs would appear to be a likely habitat to support this insect.

The sawfly is a potential horticultural pest, but its scarcity and the limited feeding damage caused by its larvae (Scheibelreiter, 1973) has meant it has not been notified as such in any country. There seems little reason to suspect it will be more injurious to roses in Britain than any of its six native rose-feeding congeners. At Creigiau Gwbert it feeds on *Rosa spinosissima*, with which it has not previously been associated. In all likelihood the larvae are oligophagous on a wide variety of roses. Other rose species, including *R. canina*, occur at Creigiau Gwbert, as well as at Traeth y Mwnt, where *R. spinosissima* is absent.

*Emphytus laticinctus* is clearly now a breeding species in south Wales, where it is conceivable that it is a native species which has been previously overlooked. The



northwesterly aspect of the Cardiganshire coast and relative unimportance of wind-dispersal in sawflies (Benson, 1950), suggest that it is unlikely to have arrived in the country as a vagrant. The transport of immature stages with rose plants by humans is well known in this genus (Benson, 1950; Smith, 1979), however, both Welsh localities are relatively remote from significant areas of human habitation.

All material is currently deposited in the collections of National Museums Liverpool.

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## SHORT COMMUNICATION

**Summer-cypress, a new host plant for Vapourer *Orygia antiqua* (L.) (Lepidoptera: Lymantriidae).** – Summer cypress *Bassia scoparia* (L.), is a bushy annual chenopod, up to one metre high, similar in general appearance to fat hen *Chenopodium album* and grass-leaved orache *Atriplex littoralis* to which it is closely related. Although *Bassia* has been cultivated in gardens in the British Isles since 1629 (why?), it has only started to spread along roadsides and motorways in the past few years. The first records for Kent, along the M20, were made by Rodney Burton in 2004 (Kitchener, G. & Palmer, J.R., *KFC Bulletin* **50**:54–56). The plant has continued to spread and the opportunity was taken on 12.ix.2006 to inspect some plants in relative safety in the lay-by halfway up Detling Hill on the A249 north of Maidstone. Two larvae of the Vapourer moth *Orygia antiqua* (L.) were found in the foliage and appeared to be eating the leaves. This is probably a new host plant for this species in UK. A large, isolated *Bassia* plant was noted further north at Stockbury roundabout, where the A249 joins the M2. The invasion of east Kent and Sheppey would appear to be only a matter of time. It is very likely that invertebrates feeding on related chenopods will transfer to this plant. – J. S. BADMIN, Coppice Place, Selling, Kent ME13 9RP